REVISION STELR (Electric Circuits) 2013

1 The voltage across a load in an electric circuit is a measure of:

A the amount of electric charge passing through the load in each second
B the amount of energy gained or lost by electric charge as it moves through the load
C the amount of electrical energy transformed in the load during each second
D the electric current travelling through the load.

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2 The flow of electric charge in an electric circuit is called:

A electric current
B electric power
C resistance
D voltage.

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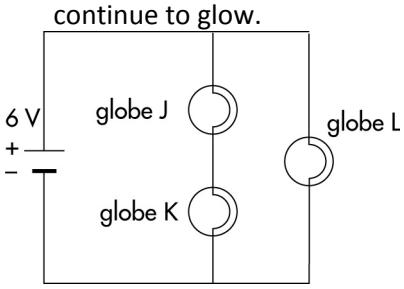
3 An ammeter is used to measure:

A electrical energy
B resistance
C voltage
D electric current.

4 If the filament in light-globe K shown in the following circuit diagram breaks:

A globes J and L will both stop glowing
B globes J and L will continue to glow
C globe J will stop glowing and globe L will continue to glow
D globe L will stop glowing and globe J will continue to glow.

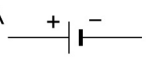
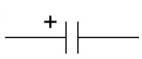
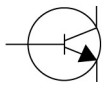


5 The watt is a unit of:

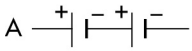
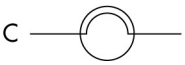
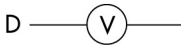
A electric current
B energy
C power
D voltage.

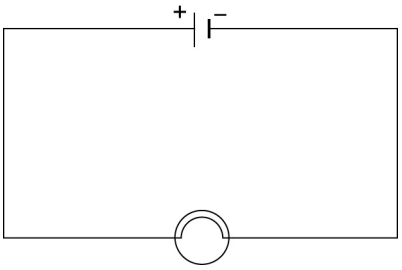
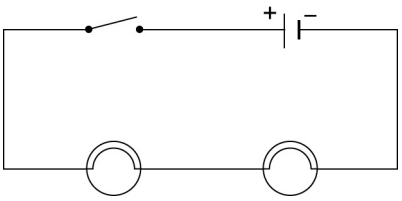
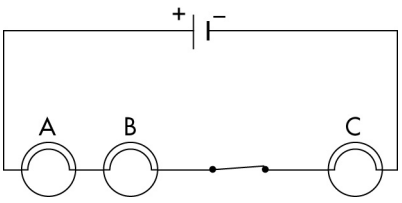
6 The amount of electrical energy transformed by a 5000 W air conditioner during 10 hours of operation is:

A 50 000 kWh
B 50 kWh
C 50 000 J
D 5000 kJ
E 180 kJ
F 1 800 000 kJ.

7	Which of the following symbols represents a battery in an electric circuit diagram? A  B  C  D 

Short Answer:

8	State which part of an electric circuit is represented by each of the following symbols. A  B  C  D 
9	What produces electric currents?
10	In a light bulb, what two forms of energy is electrical energy changed into?

11	Draw a circuit diagram to show where a voltmeter and ammeter should be placed in the following circuit to correctly measure the voltage across the globe and the current flowing through it. Use + and – signs on the meter symbols. 
12	Explain why the conducting paths in electric appliances are usually made of metals like copper?
13	Describe the circuit shown below in words. 
14	In the electric circuit below, which lamps will stop glowing if the switch is opened? 
15	Draw (a) a series and (b) a parallel circuit, with a 12 volt battery and three globes in each. Explain what would happen if one globe 'blew' in each circuit.

17	The lights in a house are connected in parallel with each other. State two advantages of connecting them in parallel rather than in series.
18	The electric power delivered to an electronic device can be calculated using the formula P = VI where P = power in watts, V = voltage and I = electric current in amperes. Imagine that you are required to measure the power delivered to a coil of wire in an electric kettle. Assume that the coil has been removed from the kettle. The coil of wire can be represented in a circuit diagram as a resistor. (a) List all of the equipment that you would need. (b) Use the appropriate symbols to draw a circuit diagram to represent the electric circuit used to perform the test.

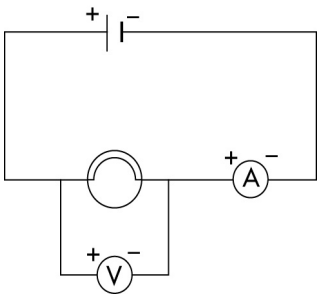
ANSWERS

1/ B 2/ A 3/D 4/C 5/C 6/B 7/A

8/ A: battery or two cells in series B: open switch C: light globe D: voltmeter

9/ The flow of negatively charged electrons. 10/ Heat and light.

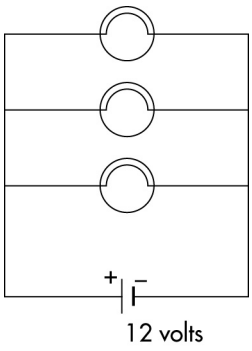
11/ 12/ Copper is a good conductor.

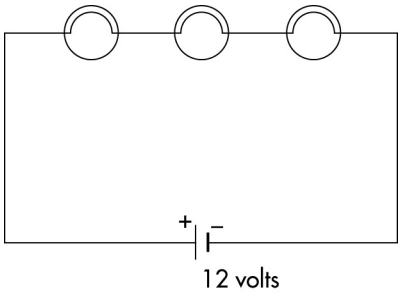


13/ Two light globes, a cell and a switch are all connected in series. The switch is open.

14/ All three of A, B and C.

15/ (a) (b)





(a) If one bulb 'blows', the other two may get brighter. (b) If one bulb 'blows' all bulbs go out.

16/ (a) A, B (b) A, B, C (c) None

17/ Two of: If one light 'blows', the others are not affected at all. For lights in series, a 'blown' light could not be identified as easily because all lights would stop working. In a series circuit, adding more lights would cause the rest to be dimmer and you could not turn on individual lights; they would have to be all on or all off.

(a) 18/ (a) Power supply, connecting leads, ammeter, voltmeter

(b)